REMARKS

Claims 1, 2, 4-14, and 16-22 are now pending in the application. Claims 1, 2, 4-14, and 16-22 stand rejected. Claims 1 and 10 are amended. Applicants respectfully request addition of new claims 23-26, support for which may be found in the specification as originally filed at paragraphs [0024] and [0025]. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

DRAWINGS

Applicants previously filed a replacement sheet for Figure 1 in order to add reference numerals as required by the Examiner. However, the replacement sheet did not accurately depict addition of the required reference numerals to the originally filed Figure 1, but to a different version of Figure 1 having conflicting reference numerals and alternative content. Accordingly, Applicant files herewith a new replacement sheet adding the required reference numerals to the originally filed Figure 1.

REJECTION UNDER 35 U.S.C. § 112

Claims 1-22 stand rejected under 35 U.S.C. 112, first paragraph, because independent claims 1 and 10 are alleged to contain new matter. This rejection is respectfully traversed.

As detailed below, the limitation "a sequence of the recognized values echoed in the audio feedback reflects a sequence of the spotted words within the input utterance" is supported in the specification as originally filed for at least three reasons. Firstly, the word "echo" used in the specification and originally filed claims is defined as "the reflection of sound waves", which necessarily preserves any sequence embodied in the

reflected sound waves; thus, the word "echo" at least connotes reflection of the sequence of the spotted words. Secondly, every example in the specification of echoing the spotted words in the input utterance necessarily reflects the sequence of the spotted words. Thirdly, the preferred embodiment disclosed at paragraphs [0024] and [0025] "uses a tightly coupled dialogue model that provides instant feedback to the officer of each uttered block of text, affording the officer the immediate opportunity to correct any recognition errors" by treating "output from the recognizer 18 as entries to the dialogue system"; this sub-embodiment of Applicants' claimed invention that immediately provides audio feedback of the spotted words upon interpretation of each input utterance necessarily results in reflection of the sequence of the spotted words within the input utterance. These points are further discussed below.

The phrase "a sequence of the recognized values echoed in the audio feedback reflects a sequence of the spotted words within the input utterance" is deemed objectionable by the Examiner as new matter. The Examiner states that the words "reflecting" and "sequence" are not found in the specification, and that there is no inherent disclosure for the claimed limitation. However, Applicants are not required to use ad hoc verba in amending the claims, but may accurately paraphrase the teachings contained in the disclosure. Applicants respectfully direct the Examiner's attention to such teachings below.

Applicants first direct the Examiner's attention to the use of the word "echo" throughout the specification, including the claims as originally filed. *Webster's Third New International Dictionary—Unabridged* defines "echo" as "the reflection of sound waves", "become reflected", "repeat", and "closely imitate". It should be readily

recognized that an echo as reflected sound waves inherently preserves any sequence embodied in the sound waves. The use of the word echo for repetition and close imitation also connotes that the one repeating or imitating inherently simulates an echo at least in preserving any sequence embodied in the repeated or closely imitated subject. Applicants respectfully submit that this reflection characteristic of echoing feedback, especially in combination with several examples thereof in the specification, sufficiently teaches audio feedback that reflects sequence of the input utterances.

Accordingly, Applicants direct the Examiner's attention to various examples of audio feedback that reflect sequence of the input utterances in the originally filed specification. One example is depicted in Figure 1, wherein a sequence of spotted words within an input utterance "Charlie Adam 0...7 Nora..." received at element 10 is reflected in the audio feedback "Charlie Adam 0...7 Nora..." emanating from element 28. Another example at paragraphs [0024] and [0025] illustrates exemplary operation of the invention with the input utterances "Adam Boy" and "Charlie" being echoed in two blocks according to the sequence of input by taking the recognizer output blocks as entries to the dialogue system. This dialogue system "uses a tightly coupled dialogue model that provides instant feedback to the officer of each uttered block of text, affording the officer the immediate opportunity to correct any recognition errors". Thus, the feedback occurs upon output of each block, and therefore necessarily reflects the sequence of the input utterances. Moreover, there are no examples in the specification that illustrate operation of the system without audio feedback that reflects sequence of the input utterances.

Applicants respectfully request the Examiner withdraw the rejection under 35 U.S.C. 112, first paragraph.

REJECTION UNDER 35 U.S.C. § 102

Claims 1, 2, 6, 8-10, 14, 17, and 19-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Takebayashi et al. (U.S. Pat. No. 5,577,165). This rejection is respectfully traversed.

The Examiner's cited examples in Takebayashi et al. of reflection of the input sequence (i.e., an input of "three coffees" and one by one confirmation) do not anticipate the claimed limitation "a sequence of the recognized values echoed in the audio feedback necessarily reflects a sequence of the spotted words within the input utterance", because the categorized feedback does not always reflects the sequence of spotted words in the input utterance in every case. For example, the audio output, "three coffees", can occur according to Takebayashi et al. even where the speaker has not stated "three coffees", but has ordered two coffees, a burger, and another coffee; thus this feedback does not necessarily reflect the sequence of input, but only does so coincidentally in special cases. Also, the one by one confirmation occurs according to Takebayshi et al. by taking each category of item in turn; thus the cited statement, "Let me confirm one by one ... You want two hamburger, right?", does not necessarily reflect the sequence of input, but only does so coincidentally in special cases as explained above. In contrast, the claimed invention's audio feedback always reflects the sequence of spotted words in the input utterance in every case, such that the officer can determine if the recognized input sequence is correct, rather than just the categorized content. These points are further detailed below.

Takebayashi et al. is generally directed toward a speech dialogue system. In particular, Takebayashi et al. is directed toward an automated drive through order taking system at a fast food restaurant. In operation, users may order items and hear feedback detailing the order contents, but the feedback does not echo the input utterances. For example, a user can order a cola, a burger, and another cola, and hear feedback such as "one burger and two colas". Thus, sequence of input utterances is not necessarily reflected in audio feedback. This failure of Takebayashi to reflect sequence stems from the fact that identical food items are fungible, and the sequence of utterance is not important. In fact, identical types of food items appear to be grouped together in order to improve efficiency in filling the order.

Applicants' claimed invention is directed toward hands and eyes free data entry by voice. In particular, Applicants' claimed invention is directed toward entry of sequential data, such as license plate numbers, with audio feedback that reflects the sequence of input utterances. For example, independent claims 1 and 10, especially as amended, recite "a sequence of the recognized values echoed in the audio feedback necessarily reflects a sequence of the spotted words within the input utterance". Support for the amendments may be found in the specification as originally filed at paragraphs [0024] and [0025], which detail a dialogue manager that "uses a tightly coupled dialogue model that provides instant feedback to the officer of each uttered block of text, affording the officer the immediate opportunity to correct any recognition errors". Thus, the feedback occurs upon output of each block, and therefore necessarily reflects the sequence of the input utterances.

These differences from the teachings of Takebayashi et al. are significant because the identity of values in a license plate, for example, are entirely sequence dependent. As illustration, consider that an officer has uttered "Adam Charlie Adam...Charlie Adam Charlie". If the audio feedback were "three Adams and three Charlies" according to the teachings of Takebayashi et al., then the Officer would have no idea if the recognized sequence were correct. It should be appreciated that license plate sequence is important, since the license plate "ACACAC" is different from the license plate "AACCAC". Accordingly, the Examiner would have to misunderstand Takebayshi et al. to teach necessary sequence reflection at: column 7, lines 23 to 43: Figure 2; column 17, lines 61 to 65; and column 13, lines 41 to 50: Figure 12C. Rather, these cited sections of Takebayashi et al. support that sequence of spotted words in the utterance is not necessarily preserved in feedback, but rather destroyed in many circumstances at least by grouping amounts food items together by category. It is also apparent that sequence is further destroyed by rearrangement of types of items in feedback as evidenced at Figure 30B, where "Coffees" are added in between previously ordered items. Accordingly, the example cited by the Examiner at column 22, lines 18 to 25: Figure 30B does not teach that the feedback necessarily reflects the sequence of input utterances when one of each food item is ordered. Specifically, there is no way for the reader to determine, without hindsight reasoning, if the user spoke "hamburger" before "cola" or "cola" before "hamburger"; the same is true of the Examiner's cited example at column 13, lines 36-50, Figures 12A-12C, where the sequence of the input utterance is not detailed. Moreover, other examples in Takebayshi et al. (i.e. "Coffees" as above) indicate that the order of types of food items does not necessarily reflect the

order of spotted words in the utterance, even where one each of two food items is ordered. Finally, the Examiner's remark that an input utterance such as "three colas" results in reflection of spotted word sequence in at least part of the feedback is appreciated; however, there are circumstances in which the feedback "three colas" would not accurately reflect the sequence of spotted words in the input utterance as detailed above. Accordingly, the audio feedback of Takebayashi et al. does not necessarily reflect a sequence of the spotted words within the input utterance. Thus, unlike Takebayashi et al., the hands and eyes free system of Applicants' claimed invention is able to facilitate sequential data entry by voice in applications where data sequence is critical by necessarily reflecting spotted word sequence in all audio feedback of recognized values in the input uttetance.

Applicants respectfully request the Examiner withdraw the rejections of independent claims 1 and 10 under 35 U.S.C. §102(b) based on Takebayashi et al., along with rejections on these grounds of all claims dependent therefrom.

REJECTION UNDER 35 U.S.C. § 103

Claims 4, 5, 11, 12, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takebayashi et al. (U.S. Pat. No. 5,577,165) in view of LaRue (U.S. Pat. No. 5,748,840). This rejection is respectfully traversed.

Firstly, Applicants respectfully refer the Examiner to remarks made above with respect to rejection under 35 U.S.C. §102(b). The differences between Applicants' claimed invention and teachings of Takebayshi et al. are significant because the claimed invention's audio feedback always reflects the sequence of spotted words in the input utterance in every case, such that the officer can determine if the recognized input

sequence is correct, rather than just the categorized amounts of content. Thus, Takebayashi et al. fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In addition LaRue fails to teach, suggest or motivate the claimed limitation, even if permissibly combined with Takebayashi et al., as explained below.

Applicants note that LaRue fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In particular, LaRue fails to teach suggest, or motivate "audio feedback echoing at least one of recognized values and recognized commands is performed upon interpretation of each input utterance, and a sequence of the recognized values echoed in the audio feedback necessarily reflects a sequence of the spotted words within the input utterance" as recited in independent claims 1 and 10. The Examiner does not rely on LaRue in this capacity. Moreover, neither Takebayashi et al. nor LaRue, alone or combined, teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. These differences are significant.

Applicants respectfully request the Examiner withdraw the rejection of claims 4, 5, 11, 12, and 16 under 35 U.S.C. §103(a) based on their dependency from allowable base claims.

Claims 7 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takebayashi et al. (U.S. Pat. No. 5,577,165) in view of Cornelison (U.S. Pat. No. 5,263,118). This rejection is respectfully traversed.

Firstly, Applicants respectfully refer the Examiner to remarks made above with respect to rejection under 35 U.S.C. §102(b). The differences between Applicants'

claimed invention and teachings of Takebayshi et al. are significant because the claimed invention's audio feedback always reflects the sequence of spotted words in the input utterance in every case, such that the officer can determine if the recognized input sequence is correct, rather than just the categorized amounts of content. Thus, Takebayashi et al. fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In addition Cornelison fails to teach, suggest or motivate the claimed limitation, even if permissibly combined with Takebayashi et al., as explained below.

Applicants note that Cornelison fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In particular, Cornelison fails to teach suggest, or motivate "audio feedback echoing at least one of recognized values and recognized commands is performed upon interpretation of each input utterance, and a sequence of the recognized values echoed in the audio feedback necessarily reflects a sequence of the spotted words within the input utterance" as recited in independent claims 1 and 10. The Examiner does not rely on Cornelison in this capacity. Moreover, neither Takebayashi et al. nor Cornelison, alone or combined, teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. These differences are significant.

Applicants respectfully request the Examiner withdraw the rejection of claims 7 and 18 under 35 U.S.C. §103(a) based on their dependency from allowable base claims.

Claims 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takebayashi et al. (U.S. Pat. No. 5,577,165) in view of Richards (U.S. Pat. No. 6,038,534). This rejection is respectfully traversed.

Firstly, Applicants respectfully refer the Examiner to remarks made above with respect to rejection under 35 U.S.C. §102(b). The differences between Applicants' claimed invention and teachings of Takebayshi et al. are significant because the claimed invention's audio feedback always reflects the sequence of spotted words in the input utterance in every case, such that the officer can determine if the recognized input sequence is correct, rather than just the categorized amounts of content. Thus, Takebayashi et al. fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In addition Richards fails to teach, suggest or motivate the claimed limitation, even if permissibly combined with Takebayashi et al., as explained below.

Applicants note that Richards fails to teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. In particular, Richareds fails to teach suggest, or motivate "audio feedback echoing at least one of recognized values and recognized commands is performed upon interpretation of each input utterance, and a sequence of the recognized values echoed in the audio feedback necessarily reflects a sequence of the spotted words within the input utterance" as recited in independent claims 1 and 10. The Examiner does not rely on Richards in this capacity. Moreover, neither Takebayashi et al. nor Richards, alone or combined, teach, suggest, or motivate all of the elements of Applicants' claimed invention, especially as amended. These differences are significant.

Applicants respectfully request the Examiner withdraw the rejection of claims 21 and 22 under 35 U.S.C. §103(a) based on their dependency from allowable base claims.

Secondly, Applicants respectfully draw the Examiner's attention to added claim 21 that recites "providing a full duplex dialogue interaction including speech recognition and passive, auditory feedback." Added claim 22 recites similar subject matter. These additions are fully supported in the Application as originally filed at paragraphs [0021], [0022], [0025], and [0026]. In particular, full duplex dialogue interaction is provided that allows the user to speak at any time and the system to generate prompts at any time. The feedback is passive in that no answer is required from the user to confirm that the recognition is correct. Rather, the user may respond to the feedback if the recognition is incorrect and thereby enter and correct sequential data in a manner having greater facility than that provided in the prior art. These differences are significant for reasons detailed in the application as originally filed at paragraph [0022]. In contrast, Takebayashi et al. provides a half-duplex system that splits the dialogue into "input states" and "output states". Following feedback, the system requires at least one of confirmation and contradiction of the recognition results with a keyword, such as "yes", "no", "add", and others mapped to commands such as addition, cancellation, and replacement. These commands cause the system to populate new act frames and exit the input state (Figure 5, column 10, lines 7-24, Figure 12, column 13, lines 41-column

14, line 2) . Similarly, LaRue provides a half duplex system that waits for a "yes" or "no" response from the user after each synthesized feedback utterance before going back into an input mode (column 7, lines 14-34). Therefore, neither Takebayashi et al. nor LaRue, alone or combined, teach, suggest, or motivate all of the limitations recited in claims 21 and 22.

Secondly, Applicants respectfully direct the Examiner's attention to arguments made above with respect to added claims 21 and 22. Applicants further note that Cornelison fails to teach, suggest, or motivate the recited subject matter. In particular, Cornelison teaches a half duplex system that exits an input mode and enters an output mode when the search string is complete (Figure 3). Determination of search string completion is based on a command from the user (column 7, lines 52-54). During the input mode, the system apparently assumes that unrecognized input is noise and disregards it, providing no feedback to the user during the input mode (Figure 3). The user is given no opportunity to correct misrecognition, and output only indicates whether the license plate is on file for a violation and, if so, the type of violation (Figure 3). Thus, the user has no way of knowing whether the plate number was recognized correctly because no recognition-related feedback is provided. Therefore, neither Takebayashi et al. nor Cornelison, alone or combined, teach, suggest, or motivate all of the limitations recited in claims 21 and 22.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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